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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

DOUG LITTLE, CHAIR
TOM FORESE
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Arizona Corporation Commission

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IN THE MATTER OF THE APPLICATION
OF
ARIZONA PUBLIC SERVICE COMPANY
FOR A HEARING TO DETERMINE THE
FAIR VALUE OF THE UTILITY PROPERTY
OF THE COMPANY FOR RATEMAKING
PURPOSES, TO FIX A JUST AND
REASONABLE RATE OF RETURN
THEREON, [AND] TO APPROVE RATE
SCHEDULES DESIGNED TO DEVELOP
SUCH RETURN.

(Teena Jibilian, Hearing Officer)

DOCKET NO. E-01345A-16-0036

**INTERVENOR GAYER'S
PREPARED DIRECT TESTIMONY**

IN THE MATTER OF FUEL AND
PURCHASED POWER PROCUREMENT
AUDITS FOR ARIZONA PUBLIC SERVICE
COMPANY.

DOCKET NO. E-01345A-16-0123

Richard Gayer, an Intervenor herein and a customer of Arizona Public Service (APS) in Phoenix, Arizona, hereby submits his Prepared Direct Testimony.

Q1. What is your background and education?

A1. Gayer is a retired electronics engineer and lawyer with degrees B.S.E.E., M.S.E.E., and J.D. He gained some experience before the Commission when he represented himself in Docket No. 13-0327 against Southwest Gas Corporation and obtained a settlement exposing the previously hidden Monthly Weather Adjustment charges to all residential customers of SWGas.

Q2. Should APS's proposal for a mandatory demand charge be rejected?

A2. Yes, and for several reasons. First, unlike similar charges around the United States, the charge sought by APS is mandatory and independent of customer characteristics. See APS's

1 Response to Staff Data Request No. 12 at APSRC01454 (page 1 of 1) filed on 19 October 2016
2 (Adobe page 91/177). Such a charge is appropriate only for large users (*ibid.*), and few
3 residential users so qualify. Secondly, such a charge is complex and requires sophisticated and
4 expensive hardware and software to manage a customer's demand effectively. Thirdly, it is a
5 burden on Senior Citizens (persons over 65 years old) and especially on such persons who are
6 elderly (over 75). Finally, it is a burden on working families where two wage-earners are
7 struggling to make ends meet and have no time available to stagger the usage of their
8 appliances.

9
10 Q3. Should Senior Citizens, customers who are over 65, be allowed to select the
11 proposed Extra Small Rate independent of their demand or energy usage or size of their
12 principal residences?

13 A3. Yes. This is largely because of the foregoing complexity and expense of installing
14 equipment to effectively manage demand.

15
16 Q4. Should Senior Citizens be allowed to select the proposed Extra Small Rate if their
17 average monthly energy usage does not exceed 830 kilowatt-hours (up to 9960 kilowatt-hours
18 per year)?

19 A4. Yes. That would be an easy way to protect Senior Citizens from the complexity and
20 burden of dealing with demand charges.

21
22 Q5. Should Senior Citizens whose principal residences do not exceed 1800 square feet
23 be allowed to select the proposed Extra Small Rate?

24 A5. Yes, but only if the Commission rejects both of Gayer's proposals set forth above
25 under Questions 3 and 4. APS has long experience in verifying energy usage, but none in
26 verifying residential sizes.

1 Q6. Should all customers whose average monthly usage does not exceed 830 kilowatt-
2 hours (up to 9960 kilowatt-hours per year) be allowed to select the proposed Extra Small Rate?

3 A6. Yes. The limit of 600 proposed by APS is much too low. A demand rate that is
4 mandatory should be imposed only on customers whose energy usage is much closer to APS's
5 stated average of 1100 kilowatt-hours per month. Any demand rate should be applied, at least
6 initially, only to the larger energy users. They are likely to be better able to manage demand
7 because they have more energy usage to consider and many may be able to afford the high cost
8 of demand management equipment.

9 Gayer's proposed limit may be decreased to 600 three years after the effective date of the
10 Commission's Order in this case, but based only on the proven experience of APS during those
11 years and the Commission's ruling on an appropriate public motion by APS for such a decrease.

12
13 Q7. Should all customers whose principal residences do not exceed 1800 square feet be
14 allowed to select the proposed Extra Small Rate?

15 A7. Yes, but only if the Commission rejects Gayer's proposal set forth in Question 6,
16 above.

17
18 Q8. Should APS be required to use bill estimation, reading meters every other month or
19 every six months, for customers who do not have smart (AMI) meters?

20 A8. Yes. Sending readers out to read all non-AMI meters every month is wasteful and is
21 apparently designed to pressure users of such meters to convert to AMI meters. If the
22 Commission approves a six month cycle, then APS should be permitted to require one-time
23 deposits from customers on that cycle equal to one-half of a customer's total bills from the
24 previous 12 months.

25
26 Q9. Should APS be required to remove all smart (AMI) meters by the end of 2018 and
27 replace them with analog meters or digital meters that do not transmit or receive electrical,
28 electronic or radio signals and which digital meters lack contacts or other mechanism that could

1 be used to disconnect a customer's service if suitable hardware and software were activated in or
2 added to the meter?

3 A9. Yes. AMI meters are harmful for several reasons. Radiation from them sickens
4 almost five percent of the population, they are susceptible to hacking, especially disconnects, by
5 people from terrorists to nasty neighbors, their substandard contacts can cause house fires, their
6 detailed and granular measurements invade customers' privacy, and their lifetimes are short
7 compared to those of analog meters.

8
9 Q10. Should APS add security to protect its workers and installations from attacks by
10 customers who are angered to violence by the proposed mandatory demand charge?

11 A10. Yes. APS has over one million customers, a sufficiently large number for the rule
12 of one in a thousand to apply. That is, if government or a powerful corporation oppresses a
13 large number of people, most will just accept the oppression and some will object through
14 lawful and peaceful means. However, one-tenth of one percent are likely to resort to violence
15 against whatever assets of APS are exposed to the public. Therefore, APS should add a physical
16 security charge of about one dollar per month to all bills, thereby raising over ten million dollars
17 per year for that security.

18
19 Q11. Should APS protect its open wireless network of smart (AMI) meters from cyber
20 attacks?

21 A11. Yes. APS's wireless network presents an attractive target for terrorists, hackers,
22 and other trouble makers. Unauthorized access to any single meter provides immediate access
23 to many other meters on the network and eventually to almost the entire network. Among other
24 things, a hacker can disconnect one or more customers' power via the smart meters.

25 Gayer understands that APS currently uses 128-bit encryption in its smart meters, but that
26 can be broken by Amazon for no more than \$100. The Commission should require APS to
27 improve meter security by an order of magnitude within the next year or remove all smart
28 meters by the end of 2018.

1
2 Q12. Should the Commission continue to allow APS to pit one class of customers (with
3 rooftop solar) against another (those without rooftop solar)?

4 A12. No. Distributed generation (DG) benefits all APS customers, and full ("retail") net
5 metering should be continued to encourage more rooftop solar installations. DG also provides a
6 measure of protection against terrorists, since utility scale solar generation attracts terrorists who
7 can use inexpensive drones to damage such large installations.

8 As a customer without rooftop solar, Gayer is proud to continue to pay more (up to ten
9 percent) for his energy so that others may be encouraged to install rooftop solar.

10
11 Q13. Should APS provide a bill credit to customers who install demand controllers to
12 limit their demand charges, as other electrical utilities such as Black Hills Power company have
13 done? (See APS's Response to Staff's Data Request No. 12 at APSRC01469 for South Dakota
14 and APSRC01470 for Wyoming.)

15 A13. Yes. Demand charges can be shocking and expensive, and customers seldom have
16 advance warning regarding demand spikes so that they can reduce demand before a charge is
17 applied. Demand controllers can prevent such demand spikes in the first place.

18
19 Q14. What are the minimum system requirements for a smart (AMI) meter to begin to
20 provide some benefit to an APS customer?

21 A14. The smart meter must provide real time (minute-by-minute) data to the customer,
22 the customer must have a demand controller that communicates wirelessly or otherwise with the
23 smart meter, and the demand controller must have sufficiently sophisticated software to enable it
24 to connect or disconnect appliances to minimize demand peaks. Such a system would make
25 sense only for a large energy user with an abundance of money.

26
27 Q15. Should APS change its full name to reflect the service it is providing, to "Arizona
28 *Power Service*"?

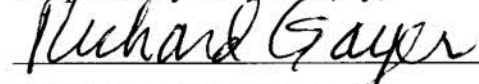
1 A15. Yes. The "public" in APS suggests that it is a governmental entity, similar in kind
2 to DPS, the Department of Public Safety. That is somewhat deceptive, since APS is a fully
3 private corporation with shareholders. Since APS provides power, it should change its full
4 name to Arizona Power Service. Its abbreviation and logo will remain the same; "APS" will not
5 change. (Gayer has been writing checks to Arizona Power Service since he arrived in Phoenix
6 in early 2004, and all of them have been accepted by APS in full payment of his monthly bills.)
7
8

9 **Proof of Service**

10 On 7 December 2016, I served copies of the foregoing on all parties on the "Service
11 List" in this case.
12

13 Dated: 7 December 2016

Respectfully submitted by,



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